CLAIMS:

1. A solid phase extraction article comprising:

a first porous support layer;

a second porous support layer;

a layer of solid phase extraction medium disposed between, and in direct contact with, the first porous support layer and the second porous support layer; and

a welded seam attaching the first porous support layer and the second porous support layer, wherein a portion of the solid phase extraction medium is bound within the welded seam;

wherein the solid phase extraction medium comprises a fibril matrix comprising sorptive particles and thermoplastic particles enmeshed in the fibril matrix.

2. The article of claim 1, wherein the welded seam extends about a periphery of the solid phase extraction article.

3. The article of claim 1, wherein the welded seam extends continuously about a periphery of the solid phase extraction article.

4. The article of claim 1, wherein the welded seam extends continuously about a periphery of the solid phase extraction article such that the solid phase extraction medium is located within a volume defined by the first porous support layer, the second porous support layer, and the welded seam.

5. The article of claim 1, wherein the solid phase extraction medium comprises an average thickness measured in a direction normal to the first porous layer and the second porous layer, and wherein the welded seam comprises a seam thickness measured in the direction normal to the first porous support layer and the second porous support layer, wherein the seam thickness is 25% or more of the average thickness of the solid phase extraction medium.

6. The article of claim 5, wherein the seam thickness is 50% or more of the average thickness of the solid phase extraction medium.

7. The article of claim 1, wherein the sorptive particles are selected from the group consisting of silica particles, resin polymers, chelating particles, ion exchange particles, and combinations of two or more thereof.

8. The article of claim 1, wherein the thermoplastic particles comprise a polymer selected from the group consisting of polyolefin, polycarbonate, polyester, polyamide and combinations of two or more thereof.

9. The article of claim 1, wherein the thermoplastic particles comprise 10 wt-% or more of the combined weight of both the sorptive particles and thermoplastic particles in the solid phase extraction medium, and wherein the thermoplastic particles comprise 95 wt-% or less of the combined weight of both the sorptive particles and thermoplastic particles in the solid phase extraction medium.

10. The article of claim 1, wherein the thermoplastic particles comprise spheroidal particles comprising a diameter of 5 microns or more, and wherein the spheroidal particles comprise a diameter of 80 microns or less..

11. The article of claim 1, wherein the fibril matrix comprises a fluoropolymer.

12. The article of claim 1, wherein at least one of the first porous support layer and the second porous support layer comprises thermoplastic material.

13. The article of claim 1, wherein the first porous support layer comprises a nonwoven pre-filter that comprises a solidity of no greater than 20%, a thickness of at least 0.5 mm, and a basis weight of at least 70 g/m^2.

14. The article of claim 1, wherein the first porous support layer comprises a non-woven web that comprises thermoplastic fibers.

15. The article of claim 1, wherein the first porous support layer and the second porous support layer each comprise a thermoplastic material, and wherein the thermoplastic material in the first porous support layer and the second porous support layer is the same.

16. A well-less filtration device comprising:

a first support layer;

a second support layer;

and a solid phase extraction medium disposed between the first support layer and the second support layer, the solid phase extraction medium comprising a fibril matrix that comprises a fluoropolymer, sorptive particles enmeshed in the fibril matrix, and thermoplastic particles enmeshed in the fibril matrix;

wherein a portion of the first support layer, a portion of the second support layer and a portion of the solid phase extraction medium are welded together to form a pattern of filter cells and land areas, wherein each of the filter cells comprises a welded seam and wherein the land areas are disposed between the filter cells.

17. The device of claim 16, wherein, for each of the filter cells, the welded seam extends continuously about a periphery of the filter cell.

18. The device of claim 16, wherein, for each of the filter cells, the welded seam extends continuously about a periphery of the filter cell such that the solid phase extraction medium is located within a volume defined by the first porous support layer, the second porous support layer, and the welded seam.

19. The device of claim 16, wherein the solid phase extraction medium comprises an average thickness measured in a direction normal to the first porous layer and the second porous layer, and wherein the welded seam comprises a seam thickness measured in the direction normal to the first porous support layer and the second porous support layer,

wherein the seam thickness is 25% or more of the average thickness of the solid phase extraction medium.

20. The device of claim 19, wherein, for each of the filter cells, the seam thickness is 50% or more of the average thickness of the solid phase extraction medium.

21. The device of claim 16, wherein the sorptive particles are selected from the group consisting of silica particles, resin polymers, chelating particles, ion exchange particles and combinations of two or more thereof.

22. The device of claim 16, wherein the thermoplastic particles comprise a polymer selected from the group consisting of polyolefin, polycarbonate, polyester, polyamide and combinations of two or more thereof.

23. The device of claim 16, wherein the thermoplastic particles comprise 10 wt-% or more of the combined weight of both the sorptive particles and thermoplastic particles in the solid phase extraction medium, and wherein the thermoplastic particles comprise 95 wt-% or less of the combined weight of both the sorptive particles and thermoplastic particles in the solid phase extraction medium.

24. The device of claim 16, wherein the thermoplastic particles comprise spheroidal particles comprising a diameter of 5 microns or more, and wherein the spheroidal particles comprise a diameter of 80 microns or less..

25. The device of claim 16, wherein at least one of the first porous support layer and the second porous support layer comprises thermoplastic material.

26. The device of claim 16, wherein the first porous support layer comprises a nonwoven pre-filter having a solidity of no greater than 20%, a thickness of at least 0.5 mm, and a basis weight of at least 70 g/m^2.

27. The device of claim 16, wherein the first porous support layer comprises a non-woven web that comprises thermoplastic fibers.

28. The device of claim 16, wherein the first porous support layer and the second porous support layer each comprise a thermoplastic material, and wherein the thermoplastic material in the first porous support layer and the second porous support layer is the same.

29. A method of extracting an analyte from a sample, the method comprising:

providing a solid phase extraction article comprising:

a first porous support layer;

a second porous support layer;

a layer of solid phase extraction medium disposed between, and in direct contact with, the first porous support layer and the second porous support layer; and

a welded seam attaching the first porous support layer and the second porous support layer, wherein a portion of the solid phase extraction medium is bound within the welded seam;

wherein the solid phase extraction medium comprises a fibril matrix comprising sorptive particles and thermoplastic particles enmeshed in the fibril matrix; and

passing a sample through the solid phase extraction article, wherein the analyte is extracted from the sample by the solid phase extraction medium.

30. The method of claim 29, wherein the welded seam extends about a periphery of the solid phase extraction article.

31. The method of claim 29, wherein the welded seam extends continuously about a periphery of the solid phase extraction article such that the solid phase extraction medium is located within a volume defined by the first porous support layer, the second porous support layer, and the welded seam.

32. The method of claim 29, wherein the solid phase extraction medium comprises an average thickness measured in a direction normal to the first porous layer and the second porous layer, and wherein the welded seam comprises a seam thickness measured in the direction normal to the first porous support layer and the second porous support layer, wherein the seam thickness is 25% or more of the average thickness of the solid phase extraction medium.

33. The method of claim 32, wherein the seam thickness is 50% or more of the average thickness of the solid phase extraction medium.

34. The method of claim 29, wherein the sorptive particles are selected from the group consisting of silica particles, resin polymers, chelating particles, ion exchange particles, and combinations of two or more thereof.

35. The method of claim 29, wherein the thermoplastic particles comprise a polymer selected from the group consisting of polyolefin, polycarbonate, polyester, polyamide and combinations of two or more thereof.

36. The method of claim 29, wherein the thermoplastic particles comprise 10 wt-% or more of the combined weight of both the sorptive particles and thermoplastic particles in the solid phase extraction medium, and wherein the thermoplastic particles comprise 95 wt-% or less of the combined weight of both the sorptive particles and thermoplastic particles in the solid phase extraction medium.

37. The method of claim 29, wherein the thermoplastic particles comprise spheroidal particles comprising a diameter of 5 microns or more, and wherein the spheroidal particles comprise a diameter of 80 microns or less..

38. The method of claim 29, wherein the fibril matrix comprises a fluoropolymer.

39. The method of claim 29, wherein at least one of the first porous support layer and the second porous support layer comprises thermoplastic material.

40. A method of manufacturing a solid phase extraction article, the method comprising:

providing a first porous support layer;

providing a second porous support layer;

locating a layer of solid phase extraction medium between, and in direct contact with, the first porous support layer and the second porous support layer, wherein the solid phase extraction medium comprises a fibril matrix comprising sorptive particles and thermoplastic particles enmeshed in the fibril matrix; and

forming a welded seam to attach the first porous support layer and the second porous support layer, wherein a portion of the solid phase extraction medium is bound within the welded seam.

41. The method of claim 40, wherein the welded seam extends about a periphery of the solid phase extraction article.

42. The method of claim 40, wherein the welded seam extends continuously about a periphery of the solid phase extraction article.

43. The method of claim 40, wherein the welded seam extends continuously about a periphery of the solid phase extraction article such that the solid phase extraction medium is located within a volume defined by the first porous support layer, the second porous support layer, and the welded seam.

44. The method of claim 40, wherein the solid phase extraction medium comprises an average thickness measured in a direction normal to the first porous layer and the second porous layer, and wherein the welded seam comprises a seam thickness measured in the direction normal to the first porous support layer and the second porous support layer, wherein the seam thickness is 25% or more of the average thickness of the solid phase extraction medium.

45. The method of claim 44, wherein the seam thickness is 50% or more of the average thickness of the solid phase extraction medium.

46. The method of claim 40, wherein the sorptive particles are selected from the group consisting of silica particles, resin polymers, chelating particles, ion exchange particles, and combinations of two or more thereof.

47. The method of claim 40, wherein the thermoplastic particles comprise a polymer selected from the group consisting of polyolefin, polycarbonate, polyester, polyamide and combinations of two or more thereof.

48. The method of claim 40, wherein the thermoplastic particles comprise 10 wt-% or more of the combined weight of both the sorptive particles and thermoplastic particles in the solid phase extraction medium, and wherein the thermoplastic particles comprise 95 wt-% or less of the combined weight of both the sorptive particles and thermoplastic particles in the solid phase extraction medium.

49. The method of claim 40, wherein the thermoplastic particles comprise spheroidal particles comprising a diameter of 5 microns or more, and wherein the spheroidal particles comprise a diameter of 80 microns or less.

50. The method of claim 40, wherein the fibril matrix comprises a fluoropolymer.

51. The method of claim 40, wherein at least one of the first porous support layer and the second porous support layer comprises thermoplastic material.

52. The method of claim 40, wherein the first porous support layer and the second porous support layer each comprise a thermoplastic material, and wherein the thermoplastic material in the first porous support layer and the second porous support layer is the same.